

### **REMARKS**

Entry of this Amendment and reconsideration are respectfully requested in view of the amendments made to the claims and for the remarks made herein.

Claims 1-13 are pending and stand rejected.

Claims 1 and 12 are independent claims.

Claims 1 and 12 have been amended.

Claims 1-4, 7 and 12-13 stand rejected under 35 USC §103(a) as being unpatentable over Reddy (USP no. 6,175,355) in view of Suzuki (USP no. 6,982,732). Claims 5, 6, 8 and 11 stand rejected under 35 USC §103(a) as being unpatentable over Reddy and Suzuki in view of Koyama (USP no. 6,828,950). Claims 9 and 10 stand rejected under 35 USC §103(a) as being unpatentable over Reddy and Suzuki in view of Yamazaki (USP no. 7,145,536).

In maintaining the rejection of the claims the Office Action asserts that Reddy discloses a first sub-period having a non-zero brightness level (PS0-PS7) and a second sub-period having a second non-zero brightness level (PS8-PS15), as expressed in Table 1, grey level 3.

The Office Action acknowledges that Reddy fails to disclose the element "wherein the first and second levels of brightness and associated sub-periods are selected so that the time averaged sum of said brightness levels ... is substantially equal to said overall brightness level." The Office Action refers to Suzuki for teaching this element.

The Office Action, in response to applicant's arguments, further states that "[i]f Reddy requires that a control signal be individually generated for each sub-frame PS0 through PS15, then a control signal is necessarily generated for both PS0 and PS8 and these control signals are the first and second select signals triggering first and second sub-periods as claimed in claim 7."

As previously characterized, Reddy discloses a technique for modulating

pixels of a display panel for forming an image. Each pixel has an associated pixel frame that represents a period of time during which the pixel is modulated to achieve an appropriate greyscale level for the pixel. Each pixel frame includes a plurality of sub-frames. During each of the sub-frames, the pixel is placed in either an "on" condition or in an "off" condition according to a selected one of a plurality of predetermined greyscale sequences. Reddy further discloses offsetting each of the predetermined sequences based on the position of the pixel within a block (block dispersion). The offsetting is used to allow different start points among the sub-frames for different pixels.

Reddy illustrates a predetermined greyscale sequence (i.e., coding) in Table 2, wherein black represents an all-zero (0) condition and white represents an all-one (1) condition over each of the sub-frames within a pixel frame. A zero value represents an "on" condition and a 1 represents an "off" condition (see col. 3, lines 32-34).

According to Reddy, the greyscale coding shown in Table 2 teaches that a desired level of intensity may be determined for each pixel with the selection of the appropriate grey scale sequence. That is, the intensity of the pixel may be determined by the number of "on" conditions that are presented in the selected greyscale sequence. For example, black is achieved by turning on the pixel for the entire sequence (all-zero) and white is achieved by turning off the pixel for the entire sequence (all-one). Thus, the greyscaling disclosed by Reddy refers to turning "on" a pixel an appropriate number of times to achieve a desired intensity for the corresponding pixel.

In addition, to provide for the individual turn-on and turn-off of the subframes in accordance with the turn-on and turn-off sequence that provides greyscale level scaling, each of the subframes has a corresponding control signal.

Hence, even if the illustrated sub-frames of the greyscale sequence may be formulated into a first group (PS0-7) and a second group (PS8-15), each sub-frame in the first or second group requires an individual control signal. There is no control signal for the selection of the first and second groups.

The control signals for PS0 and PS8 are not associated with the first and second group but rather only the first element of the first and second groups.

Accordingly, Reddy fails to disclose a first and second group as is recited in the claims.

In addition, even if it could be said that PS0-7 and PS8-15 may be considered first and second groups, Reddy fails to teach that the brightness levels and the groups are selected so that the time averaged sum of the brightness levels is substantially equal to the overall brightness of the image.

No where does Reddy teach selecting different numbers of subframes to be within a first and second group in order for the groups to be selected to satisfy the time averaged brightness level criteria recited in the claims.

Suzuki discloses a display panel driving method comprising driving the display panel using a plurality of subframes (see Figure 2) wherein a level of brightness is achieved by outputting a signal during corresponding ones of the subframes (see Figure 3). The subframes are of different lengths and represent periods in which emissions are executed. By changing the combination of the subfields during which emissions are executed within the display interval a desired brightness level may be achieved. Referring to Figure 3, a brightness level of 23 may be achieved when signals are present in the 1<sup>st</sup> three subframes (sized 1, 6 and 16). Other combinations of brightness levels are also illustrated.

Suzuki accordingly discloses using the length of the subframe to determine a contribution of the emission to the brightness level and the accumulated sum of the emissions within each of the subframes is equal to the brightness level.

However, Suzuki fails to teach the selection of different brightness levels. Rather Suzuki teaches a brightness level being developed in a corresponding subframe based on the duration of the subframe.

Neither Reddy nor Suzuki teaches adjusting a brightness level within a subframe, as is recited in the claims. That is, signal level within a subframe is the

same in each subframe and the duration of the subframe determines the brightness level achieved.

A claimed invention is prima facie obvious when three basic criteria are met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings therein. Second, there must be a reasonable expectation of success. And, third, the prior art reference or combined references must teach or suggest all the claim limitations. However, the Court in KSR v. Teleflex (citation omitted) has held that the teaching, suggestion and motivation test (TSM) is merely to be used as a helpful hint in determining obviousness and a bright light application of such a test is adverse to those factors for determining obviousness enumerated in the Graham v. John Deere (citation omitted).

In this case, even if there were some motivation to combine the teachings of the cited references, the combination of Reddy and Suzuki fails to disclose selecting a brightness level, which is a material element recited in the independent claims. Thus, the combination of Reddy and Suzuki cannot be said to render obvious the subject matter recited in each of the aforementioned claims.

Notwithstanding the argument presented herein, applicant has elected to amend the claims to further recite the element “wherein said second level being maintained a stable level during the second sub period and the first and second brightness levels being in a known ratio.” No new matter has been added. Support for the amendment may be found at least on page 6, lines 16 and 17 and in Figure 2.

As discussed previously, Reddy and Suzuki disclose selection of a signal during a subperiod or subframe, wherein a brightness level is determined by Reddy using a known sequence of coding and Suzuki teaches a brightness determined by a duration of corresponding subframes. Neither Reddy nor Suzuki

discloses a selection of a brightness level during a subperiod, as is recited in the claims.

For the amendments made to the claims and for the remarks made herein, applicant submits that the reason for the rejection of the independent claims, and the aforementioned claims dependent therefrom, has been overcome.

Applicant respectfully disagrees with and explicitly traverses the rejection of claims 5, 6, 8 and 11 under 35 USC §103(a) as being unpatentable over Reddy and Suzuki in view of Koyama (USP no. 6,828,950).

Koyama discloses a pixel driving method wherein an EL driving voltage may decrease as a function of time (see Figure 1). However, Koyama fails to disclose that the driving voltage (second brightness level) in the second frame is maintained at a steady level or that the first brightness level is a ratio of the second brightness level, as is recited in the claims.

The combination of the cited references fails to disclose a material element recited in the independent claims, and consequently the dependent claims, and, thus, fails to render obvious the invention claimed.

Applicant respectfully disagrees with and explicitly traverses the rejection of claims 9 and 10 stand rejected under 35 USC §103(a) as being unpatentable over Reddy and Suzuki in view of Yamazaki (USP no. 7,145,536).

Yamazaki discloses a grey scale display utilizing a combined time ratio grey scale and voltage grey scale in a LCD device. Yamazaki discloses dividing a frame into sub-frames corresponding to the number of bits for the time ratio grey scale and an initial voltage is applied to the display in each sub-frame.

However, Yamazaki fails to disclose that the driving voltage in the second frame is maintained at a steady level or that the first brightness level is a ratio of the second brightness level, as is recited in the claims.

The combination of the cited references fails to disclose a material element recited in the independent claims, and consequently the dependent claims, and, thus, fails to render obvious the invention claimed.

For the amendments made to the claims and for the arguments presented, herein, applicant submits that the rejection of each of the claims has been overcome and respectfully requests that the rejections be withdrawn.

Applicant denies any statement, position or averment stated in the Office Action that is not specifically addressed by the foregoing. Any rejection and/or points of argument not addressed are moot in view of the presented arguments and no arguments are waived and none of the statements and/or assertions made in the Office Action is conceded.

Applicant makes no statement regarding the patentability of the subject matter recited in the claims prior to this Amendment and has amended the claims solely to facilitate expeditious prosecution of this patent application. Applicant respectfully reserves the right to pursue claims, including the subject matter encompassed by the originally filed claims, as presented prior to this Amendment, and any additional claims in one or more continuing applications during the pendency of the instant application.

In the event the Examiner deems personal contact desirable in the disposition of this case, the Examiner is invited to call the undersigned attorney at the telephone given below.

No fees are believed necessary for the timely filing of this paper.  
However, if any fees are determined to be necessary for filing this paper, the  
Examiner is authorized to charge Deposit Account no. \_\_\_\_\_, for the  
payment of such fees.

Respectfully submitted,  
Michael E. Belk

Date: February 4, 2010

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